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EXAMINER

SERGEANT, RABON A

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/928,764	Applicant(s) PARKS ET AL.	
	Examiner Rabon Sergeant	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 26 September 2007 and 12 December 2008.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1,5,7-9,11,12,24,25,27-30,32-34,36,37 and 39-41 is/are pending in the application.

 4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1,5,7-9,11,12,24,25,27-30,32-34,36,37 and 39-41 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

1. Claims 30, 36, and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 30, 36, and 37 fail to further the subject matter of claims 1 and 24, because claims 1 and 24 specify that the dispersion is formed in the presence of an anionic surfactant and claim 24 specifies that the prepolymer is formed from a mixture of diols.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 5, 7, 9, 24, 25, 27-30, 32-34, 36, 37, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jakubowski et al. ('027) in view of Friedel et al. ('410) or GB 1263439.

Jakubowski et al. disclose aqueous polyurethane dispersions, having a solids content and particle size that meet applicants' claims, suitable for the production of films. Furthermore,

patentees disclose that the dispersion is produced, in the absence of solvents, by dispersing a polyurethane prepolymer into water in the presence of a surfactant, such as sodium dodecyl benzene sulfonate. Patentees further disclose the use of 4,4'-MDI as a preferred reactant for producing the prepolymer, despite applicants' remarks, and blends of high molecular weight diol and low molecular weight diol, for producing the prepolymer, that possess molecular weights that fall within those claimed. See abstract, columns 3-5, and examples, especially column 3, lines 10, 11, 28+, and column 4, lines 1-19.

4. Though the primary reference discloses that the diisocyanate reactant is preferably 4,4'-MDI, the reference fails to specifically recite the use of a diphenylmethane diisocyanate having a P,P'- or 4,4'-isomer content of 99 to 90 percent. However, the use of high purity 4,4'-isomer containing diphenylmethane diisocyanate (those having a content of the 4,4'-isomer of slightly less than 100 percent) to produce such polyurethanes as elastomers and coatings was well known at the time of invention. This position is supported by the teachings of Friedel et al. and GB 1,263,439. Both of these secondary references disclose how to produce high purity 4,4'-MDI and disclose that high purity 4,4'-MDI has a content of 4,4'-isomer of at least 98%. See column 1, lines 21 and 66; column 4, line 19; and column 5, line 67, within Friedel et al. See page 1, lines 46 and 56; page 2, line 7; and claim 1, within GB 1,263,439. Given the disclosed applications within the secondary references for these high purity 4,4'-MDI isocyanates, and in view of the fact that one of ordinary skill in the art would have reasonably expected that these high purity 4,4'-MDI isocyanates would function as equivalents for the disclosed 4,4'-MDI of the primary reference, the position is taken that it would have been *prima facie* obvious to utilize these high purity 4,4'-MDI isocyanates in place of the disclosed 4,4'-MDI of the primary

reference. In addition to the motivation of expecting the respective isocyanates to function as equivalents, one of ordinary skill would have been motivated to utilize these high purity 4,4'-MDI isocyanates in place of pure 4,4'-MDI, because one would have expected the less pure 4,4'-isomer containing MDI to be less expensive and more readily obtainable.

5. With respect to claims 27-29 and 39-41, in view of the latitude afforded by the use of "about", the position is taken that the language, "about 98 percent to about 92 percent", "about 94 percent", and "about 98 percent", is no more limiting than the "99 to 90 percent" language of the independent claims and is rendered obvious by the combination of references for the aforementioned reasons.

6. Applicants' response has been considered; however, the response is insufficient to overcome the prior art rejection. Despite applicants' remarks, the examiner has provided the requisite motivation or rationale for combining the teachings of the references; applicants' attention is directed to paragraph 4 above. Furthermore, applicants have argued that the references fail to disclose the claimed diol mixture and the MDI isomer content. In response, the examiner has shown where the primary reference teaches the claimed diol mixture and has set forth rationale explaining why it would have been obvious to use MDI having the claimed isomer content. Applicants have further argued that Jakubowski et al. describe "only" the use of 50:50 mixtures of 4,4'-MDI and 2,4'-MDI. This argument is without merit, as the reference clearly teaches that 4,4'-MDI is preferred at column 3, lines 10 and 11. In summation, despite applicants' arguments, the examiner has addressed all of the claimed limitations, and the position is maintained that the relied upon teachings render the claims *prima facie* obvious.

7. Claims 1, 5, 7, 9, 24, 25, 27-30, 32-34, 36, 37, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/41552 in view of Friedel et al. ('410) or GB 1263439.

WO 98/41552 discloses aqueous polyurethane dispersions, having a solids content and particle size that meet applicants' claims, suitable for the production of films. Furthermore, the reference discloses that the dispersion is produced, in the absence of solvents, by dispersing a polyurethane prepolymer into water in the presence of a surfactant, such as sodium dodecyl benzene sulfonate. The reference further discloses the use of 4,4'-MDI as a preferred reactant for producing the prepolymer, despite applicants' remarks, and blends of high molecular weight diol and low molecular weight diol, for producing the prepolymer, that possess molecular weights that fall within those claimed. See abstract, pages 2-6, and examples, especially page 3, lines 17, 18, and 27+ and page 4.

8. Though the primary reference discloses that the diisocyanate reactant is preferably 4,4'-MDI, the reference fails to specifically recite the use of a diphenylmethane diisocyanate having a P,P'- or 4,4'-isomer content of 99 to 90 percent. However, the use of high purity 4,4'-isomer containing diphenylmethane diisocyanate (those having a content of the 4,4'-isomer of slightly less than 100 percent) to produce such polyurethanes as elastomers and coatings was well known at the time of invention. This position is supported by the teachings of Friedel et al. and GB 1,263,439. Both of these secondary references disclose how to produce high purity 4,4'-MDI and disclose that high purity 4,4'-MDI has a content of 4,4'-isomer of at least 98%. See column 1, lines 21 and 66; column 4, line 19; and column 5, line 67, within Friedel et al. See page 1, lines 46 and 56; page 2, line 7; and claim 1, within GB 1,263,439. Given the disclosed applications within the secondary references for these high purity 4,4'-MDI isocyanates, and in

view of the fact that one of ordinary skill in the art would have reasonably expected that these high purity 4,4'-MDI isocyanates would function as equivalents for the disclosed 4,4'-MDI of the primary reference, the position is taken that it would have been *prima facie* obvious to utilize these high purity 4,4'-MDI isocyanates in place of the disclosed 4,4'-MDI of the primary reference. In addition to the motivation of expecting the respective isocyanates to function as equivalents, one of ordinary skill would have been motivated to utilize these high purity 4,4'-MDI isocyanates in place of pure 4,4'-MDI, because one would have expected the less pure 4,4'-isomer containing MDI to be less expensive and more readily obtainable.

9. With respect to claims 27-29 and 39-41, in view of the latitude afforded by the use of "about", the position is taken that the language, "about 98 percent to about 92 percent", "about 94 percent", and "about 98 percent", is no more limiting than the "99 to 90 percent" language of the independent claims and is rendered obvious by the combination of references for the aforementioned reasons.

10. Applicants have referenced their remarks set forth with respect to the Jakubowski et al. reference to respond to the rejection in view of WO 98/41552. Accordingly, the examiner refers applicants to paragraph 6, above, for a complete response to their arguments.

11. Claims 1, 5, 7, 9, 11, 24, 25, 27-30, 32-34, 36, 37, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/41554, alone or in view of Jakubowski et al. ('027) or WO 98/41552, and further in view of Friedel et al. ('410) or GB 1263439.

WO 98/41554 discloses aqueous polyurethane dispersions, having a solids content and particle size that meet applicants' claims, suitable for the production of films. Furthermore, the reference discloses that the dispersion is produced, in the absence of solvents, by dispersing a

polyurethane prepolymer into water in the presence of a surfactant, such as sodium dodecyl benzene sulfonate. The reference further discloses the use of 4,4'-MDI and polyol reactants for producing the prepolymer, including mixtures of polyols, wherein the polyols possess molecular weights that overlap those claimed. Accordingly, the position is taken that the reference allows for the use of the claimed diol mixtures. See abstract, pages 4-12, and examples; especially page 10, lines 4, 5, and 10. Alternatively, the position is taken that the incorporation of low molecular weight diols within prepolymers used to produce polyurethane latexes was known at the time of invention as a means for increasing tensile strength. See column 3, line 66 through column 4, line 5 within Jakubowski et al. and page 4, lines 17-21 within WO 98/41552. Therefore, the position is taken that it would have been obvious to incorporate low molecular weight diols within the prepolymer formulation so as to improve the tensile strength of the polymer.

12. Though the primary reference discloses that the diisocyanate may be 4,4'-MDI, the reference fails to specifically recite the use of a diphenylmethane diisocyanate having a P,P'- or 4,4'-isomer content of 99 to 90 percent. However, the use of high purity 4,4'-isomer containing diphenylmethane diisocyanate (those having a content of the 4,4'-isomer of slightly less than 100 percent) to produce such polyurethanes as elastomers and coatings was well known at the time of invention. This position is supported by the teachings of Friedel et al. and GB 1,263,439. Both of these secondary references disclose how to produce high purity 4,4'-MDI and disclose that high purity 4,4'-MDI has a content of 4,4'-isomer of at least 98%. See column 1, lines 21 and 66; column 4, line 19; and column 5, line 67, within Friedel et al. See page 1, lines 46 and 56; page 2, line 7; and claim 1, within GB 1,263,439. Given the disclosed applications within the secondary references for these high purity 4,4'-MDI isocyanates, and in view of the fact that one

of ordinary skill in the art would have reasonably expected that these high purity 4,4'-MDI isocyanates would function as equivalents for the disclosed 4,4'-MDI of the primary reference, the position is taken that it would have been *prima facie* obvious to utilize these high purity 4,4'-MDI isocyanates in place of the disclosed 4,4'-MDI of the primary reference. In addition to the motivation of expecting the respective isocyanates to function as equivalents, one of ordinary skill would have been motivated to utilize these high purity 4,4'-MDI isocyanates in place of pure 4,4'-MDI, because one would have expected the less pure 4,4'-isomer containing MDI to be less expensive and more readily obtainable.

13. With respect to claims 27-29 and 39-41, in view of the latitude afforded by the use of "about", the position is taken that the language, "about 98 percent to about 92 percent", "about 94 percent", and "about 98 percent", is no more limiting than the "99 to 90 percent" language of the independent claims and is rendered obvious by the combination of references for the aforementioned reasons.

14. With respect to this rejection, applicants have incorrectly referred to WO 98/41552, as opposed to the relied upon reference, WO 98/41554. WO 98/41554 is not a published PCT equivalent of the Jakubowski et al. reference.

15. Claims 8, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/41552 or WO 98/41554 or WO 98/41554 in view of Jakubowski et al. ('027) or WO 98/41552, each in view of Friedel et al. ('410) or GB 1263439, and further in view of Alsaffar ('602).

As aforementioned, WO 98/41552 and WO 98/41554 disclose aqueous polyurethane dispersions, having a solids content and particle size that meet applicants' claims, suitable for the

production of films. Furthermore, the references disclose that the dispersion is produced, in the absence of solvents, by dispersing a polyurethane prepolymer into water in the presence of a surfactant, such as sodium dodecyl benzene sulfonate. Though the primary references fail to specifically recite the use of applicants' specifically claimed diisocyanate, the position is taken that the use of the specifically claimed diisocyanate would have been obvious in view of the teachings of the secondary references. See paragraphs 8 and 12 above.

16. With respect to claims 8, 11, and 12, though the primary references disclose the application of the dispersions to substrates and disclose the production of films, the primary references fail to specifically recite the use of the aqueous dispersions to produce items, such as gloves and condoms. However, the use of aqueous dispersions to produce such items was known at the time of invention. This position is supported by the teachings of Alsaffar at column 2, lines 18+. Therefore, it would have been obvious to use the aqueous dispersions of the primary references to produce the items recited within the claims.

17. Despite applicants' response, the examiner has provided the requisite motivation or rationale for combining the teachings of the references; applicants' attention is directed to paragraphs 8, 12, and 16, above. Furthermore, applicants have argued that the references fail to disclose the claimed diol mixture and the MDI isomer content. In response, the examiner has shown where WO 98/41552 teaches the claimed diol mixture and has explained how the argued diol mixture is disclosed or rendered obvious by WO 98/41554. Furthermore, the examiner has set forth rationale explaining why it would have been obvious to use MDI having the claimed isomer content. Accordingly, the prior art rejection has been maintained for the reasons set forth.

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to R. Sergent at telephone number (571) 272-1079.

/Rabon Sergent/
Primary Examiner, Art Unit 1796